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May 24, 2010

Elizabeth Braziel
Project Officer
Clean Air State/Tribal Operations Section, 6PDS
U.S. EPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, TX. 75202-2733

Dear Ms. Braziel,

Enclosed is the Cherokee Nation Environmental Programs FY2011 Clean Air Program Grant Application. CNEP is requesting $595,000 in funding to support the CNEP ambient air monitoring program initiatives. This funding will be used for Clean Air Program activities such as projects related to criteria pollutant, meteorological monitoring, and participation in regional and national monitoring initiatives. In addition, tribes will be provided with technical assistance through the ITEC consortia for projects related to the Clean Air Program. The attached work plan narrative and budget details the tasks outlined for FY11. We appreciate the continued support in protecting tribal resources.

If you have any inquiries or need additional information please contact Ryan Callison at (918) 453-5093.

Sincerely,

Tom Elkins
Environmental Administrator
Cherokee Nation Environmental Programs

Cherokee Nation

Clean Air Act, Section 103 Grant

Workplan and Budget

FY2011

submitted to the

Clean Air Section
U.S. Environmental Protection Agency, Region VI

Dallas, Texas

In coordination with the

Inter-Tribal Environmental Council (ITEC)

prepared by the

Cherokee Nation
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I. INTRODUCTION

Brief History of Cherokee Nation Clean Air Program

The Cherokee Nation's Ambient Air Quality Monitoring Program (aka, Clean Air Program) began in 1996 with a §103 project grant and has since grown, through a succession of such grants, to become the largest tribal ambient air quality monitoring program in the nation. The Cherokee Nation has established a network of six monitoring stations – five fixed locations (**Figure 1**) and one mobile monitoring station – on lands of the Cherokee Nation in Oklahoma. These stations monitor criteria pollutants, hazardous air pollutants, and a variety of other pollutants, including mercury and ammonia. The Cherokee Nation participates in four EPA national program initiatives: CASTNet; IMPROVE; the depositional mercury (MDN) monitoring network; and the mercury speciation network (AMNet). The Cherokee Nation has also established an NCORE site at its rural CASTNet site near Stilwell.

As the lead technical agent for the Inter-Tribal Environmental Council (ITEC) – an environmental consortium of 42 tribes in Oklahoma, Texas, and New Mexico – the Cherokee Nation also assists ITEC-member tribes in establishing and operating their own ambient air quality monitoring projects and programs. The Cherokee Nation also participates in tribal, regional, and national organizations, such as the Central Regional Air Planning Association (CENRAP) and the National Tribal Air Association (NTAA).

The Cherokee Nation's Clean Air Program has won two EPA Region 6 awards (1997, 2000), and the EPA's National Clean Air (Community Action) Excellence Award (2007).

Strategy and Overall Goals of the Cherokee Nation's Clean Air Program

The overall goals of the Cherokee Nation's Clean Air Program are as follows:

- Long-term monitoring of ambient air quality on lands within the Cherokee Nation's traditional jurisdictional boundaries
- Long-term operation of rural NCORE site, and participation in EPA national programs (CASTNet, IMPROVE, MDN, mercury speciation network, and, if future funding permits, in NTN)
- Assess the impact of criteria pollutants and other air pollutants on the tribal population and resources of the Cherokee Nation, and, if necessary, take steps to protect tribal populations and resources from such pollutants
- Share monitoring data with all interested parties through AQS and other databases
- Exercise Treatment-As-State (TAS) status for the purposes of securing stable, long-term funding for the Cherokee Nation's Clean Air program and for conducting permit reviews

- Provide assistance (independent audits, AQS data entry, etc.) to tribes that have ambient air quality monitoring projects and programs.

Specific Program and Project Goals for FY2011

The Cherokee Nation Clean Air Program plans to continue or initiate the following projects in FY2011 (and see **Table 1**):

1 Continue monitoring one or more criteria pollutants at each of the Cherokee Nation's five fixed monitoring stations (figure 1). Long-term monitoring of O_3 will remain a priority because O_3 concentrations are close to non-attainment of the NAAQS at several sites, particularly Newkirk. This is of great importance if the ozone standard is lowered.
2 Continue monitoring trace gases (SO_2, CO, NOy) and other pollutants (NO_2, PM2.5, PM10) via continuous monitors at NCORE site.
3 Continue speciated mercury sampling via Tekran instrument at NCORE site. (funded by EPA CAMD through a separate contract).
4 Continue CASTNet sampling at Stilwell (NCORE) site.
5 Continue monitoring of ammonia and NOy via continuous instruments at CASTNet site.
6 Continue Mercury Deposition Network (MDN) sampling at Stilwell (NCORE) site.
7 Continue participation in EPA passive sampling projects for various pollutants (such as ammonia) at Stilwell (NCORE) site.
8 Continue monitoring PM2.5, PM10, and PMcoarse via TEOMs in mobile monitoring station, which is located on lands of the Osage Nation during FY2011.
9 Continue monitoring for O_3 via continuous monitor at mobile monitoring station.
10 Continue monitoring meteorological parameters at all monitoring stations, including mobile monitoring station.
11 Continue AQS data entry.
12 Continue staff development and training, as needed, and continue participation in tribal, regional, and national organizations.
13 Continue to assist ITEC tribes with their ambient air monitoring projects, as needed. Assistance may include performance of independent audits, assistance with AQS data entry, and use of Cherokee Nation's mobile monitoring station to monitor PM2.5, PM10, PMcoarse, and O_3 on lands of ITEC-member tribes.
14 Continue to coordinate with EPA R6 and OAQPS on future monitoring initiatives such as lead that will be added to NCORE in FY11.

In summary, the Cherokee Nation plans to continue monitoring criteria pollutants and other pollutants, as well as meteorological parameters, at all of its sites; it plans to position its rural NCORE site for long-term monitoring of trace gases, criteria pollutants, speciated mercury, IMPROVE speciation, ammonia, and other pollutants of research interest; it plans to continue its participation in such EPA national programs as CASTNet, IMPROVE, MDN, and speciated mercury; it plans to research and follow guidance for the purpose of identifying future monitoring needs within the Cherokee Nation; and it plans to continue providing services, such as mobile monitoring, to ITEC tribes.

In addition, the Cherokee Nation will exercise Treatment-As-State (TAS) status so as to ensure a long-term future of stable program funding and for conducting permit reviews.

Benefits Provided by Cherokee Nation's Clean Air Program to Cherokee Nation and Other Interested Parties

Monitoring and other services performed by the Cherokee Nation's Clean Air Program provide the following benefits to the Cherokee Nation, the EPA, the state of Oklahoma, regional air planning organizations, government and academic research groups, and other interested parties, such as environmental organizations and citizens' groups:

- The Cherokee Nation is able to assess ambient air quality and its impact on tribal populations and tribal resources
- The Cherokee Nation fills crucial data gaps in the State of Oklahoma, monitoring in areas where the Oklahoma Department of Environmental Quality (ODEQ) does *not* have monitoring stations, and monitoring certain pollutants in areas where ODEQ does *not* monitor those pollutants. For example, ODEQ monitors primarily in large urban areas whereas the Cherokee Nation monitors in smaller communities and in rural areas. Specific examples of how the Cherokee Nation fills data gaps by monitoring in particular locations for particular pollutants include the following:
    - The Cherokee Nation monitors O_3 at its Newkirk site, fifteen miles north of Ponca City. O_3 is close to non-attainment of the NAAQS at this location. ODEQ does not monitor these pollutants at its site in Ponca City.
    - The Cherokee Nation monitors O_3 and NOy via continuous monitors at its Pryor site, which is adjacent to Mid-America Industrial Park (one of the largest rural industrial parks in the nation, with many emissions sources, including a coal-fired power plant and a gas-fired power plant). ODEQ does not monitor these pollutants at its mobile monitoring station in Pryor. The Pryor site equipment was upgraded in FY10.
    - The Cherokee Nation monitors O_3 by means of a continuous monitor in Tahlequah, a small city where ODEQ has no monitoring station.
    - The Cherokee Nation monitors O_3 in the rural community of Roland Oklahoma, where it serves a multiple agency need for monitoring in the Fort Smith MSA.
    - The Cherokee Nation monitors a wide variety of pollutants, including criteria pollutants, at its NCORE-CASTNet-IMPROVE site in a rural area south of Stilwell, where ODEQ has no monitoring station.
- The Cherokee Nation fills crucial data gaps in the Great Plains region by participating in the following EPA national program initiatives:
    - CASTNet – at the Cherokee Nation's NCORE site near Stilwell.
    - Mercury Deposition Network (MDN) – at the NCORE site near Stilwell.
    - Mercury speciation – by means of the Tekran instrument at the Cherokee Nation's NCORE site near Stilwell.

- IMPROVE – which is located at the Stilwell NCORE site. IMPROVE speciation data is an essential component of NCORE site monitoring, and provides a data co-benefit needed by such state and regional planning organizations.

- The Cherokee Nation's NCORE site near Stilwell is a crucial part of the national NCORE network, being one of the few rural background sites in that network. The Cherokee Nation's NCORE site monitors a wide variety of pollutants (see **Table 1**), including trace gases, criteria pollutants, and speciated mercury. In addition, the NCORE site is collocated with the Cherokee Nation's CASTNet and IMPROVE sites, and also includes MDN sampling, as well as continuous monitoring of ammonia. All this data is of great value to the EPA, regulatory agencies, regional planning organizations, environmental groups, and the scientific community.
- The Cherokee Nation benefits the ambient air monitoring programs of ITEC tribes and other tribes in EPA Region 6. It performs independent audits for six of these tribes and may assist those tribes with AQS data entry and with solving technical problems. In addition, the Cherokee Nation can use its mobile monitoring station to monitor O_3, PM2.5, PM10, and PMcoarse on lands of ITEC tribes, thus providing those tribes with data about ambient air quality on their lands.

In summary, the Cherokee Nation collects a great amount of ambient air quality data for a wide variety of pollutants. This data fills many data gaps within Oklahoma, the Great Plains region, and the lands of tribes in Oklahoma, Texas, and New Mexico. This data is of great benefit to tribes, regulatory agencies, regional planning organizations, scientists, and air quality modelers.

A. Request for Funding

The Cherokee Nation Environmental Programs (CNEP) is requesting **$595,000** in funding for FY2011. The grant funding will be utilized for operation of ambient air-monitoring stations and related Clean Air Act activities. Clean Air funding will also allow the CNEP to assist tribes by providing technical assistance, independent audits, and training to the tribes who are conducting monitoring activities. The request is made pursuant to the provisions and policies of the U.S. EPA, Region VI. There is no tribal match for this funding.

B. ITEC Consortium

Through a Memorandum of Agreement signed in October of 1992, the Cherokee Nation's Environmental Programs was delegated to serve as an "agent" for the inter-tribal consortium. As the lead agent for ITEC, the CNEP office is committed to providing environmental management, services, and technical assistance to the member tribes through specific U.S. EPA multi-media environmental grants. These grants have led to the development of eight areas of support through the CNEP offices to the ITEC member tribes: Superfund, Indian Environmental General Assistance (GAP), Clean Air, Clean Water, Brownfields, RCRA Subtitle D/Solid Waste, Hazardous Waste, & Underground Storage Tank (UST). The areas of ITEC tribal support through this grant will be primarily tasks #8 and #9, as further outlined below.

The ITEC consortium currently consists of 42 member tribes located throughout Oklahoma with two tribes in Texas and seven in New Mexico. Each ITEC member tribe, excluding the "agent," has a designated person as its environmental coordinator and point of contact for environmental management issues. The individual tribal ITEC coordinators serve as a means of correspondence with the CNEP. In addition, they may conduct initial site visits and report any identified problems to the CNEP. The tribal Chairman or Chief, tribal Councilman, as well as other tribal administrators may intercede as a point of contact for environmental issues.

C. Tribal Environmental Issues

In 1997, the U.S. EPA Office of Air & Radiation prepared a draft document titled "Strategy for Implementing the Clean Air Act in Indian Country." Within the context of the document the EPA acknowledged that there was a lack of real reservation-specific data to quantify or qualify air quality issues, incomplete federal regulatory authority in Indian Country, an increased need for technical support in the regions, and a problem of variable tribal capacity. The document identified as a strategic solution for tribes, the need to develop regulatory authority, build regional agency capacity, work with tribes to build their own capacity, and provide technology information transfer. For most tribes, these problems still exist.

The U.S. EPA Region VI Office is addressing some of these environmental issues and other concerns through the Inter-Tribal Environmental Council (ITEC) or consortium approach, and by individual tribal funding. ITEC has played an important role in addressing tribal environmental issues as the Oklahoma tribes try to establish environmental capacity and technical expertise. As the tribes become more self-reliant, ITEC assistance can assume a lesser role, seeking only to provide technical assistance and support for established tribal environmental programs. For tribes which choose not to develop environmental programs, ITEC can provide services based on need and program directives. However, ITEC must rely upon the U.S. EPA's enforcement capabilities and the consent of each individual tribe to address their environmental issues.

To build tribal capacity, technical support, contract support, and EPA capacity, the tribal clean air programs should continue to be funded under the CAA 103 and 105 grants. The EPA should also insure that the tribal issues and programs are substantially integrated through its Office of Air & Radiation, Office of Air Quality Planning & Standards and regional offices. In addition, specific funding should be increased, set-aside and allocated to tribes for direct participation at the local, state, regional and national clean air program levels.

D. Cherokee Nation - Clean Air Projects Overview

The CNEP is currently ending the 13th year of managing Clean Air Section 103 grants.

Under the 103 funding, projects have included:

GIS Tribal Land Mapping Pilot Project (FY97).
GIS Mapping of Tribal Lands (FY97-99).
Source Inventories (FY98).
PM2.5 Tribal Network Sampling (FY99-08),
CNEP Air Monitoring Program (FY98-10).

II. 2011 WORKPLAN TASKS, METHODS & PLANNED OUTPUTS

Under the CNEP ambient air-monitoring grant, the primary tasks for FY11 will involve;

1) Ambient air monitoring at five locations:
   a. Tahlequah, Oklahoma
   b. Newkirk, Oklahoma
   c. Stilwell, Oklahoma
   d. Pryor, Oklahoma
   e. Roland, Oklahoma

2) IMPROVE particulate speciation monitoring (Stilwell NCORE)
3) CASTNET monitoring program (Stilwell)
4) NCORE trace gas monitoring program (Stilwell)
5) Mercury Deposition Network (MDN) (Stilwell)
6) Lead Sampling (Stilwell NCORE)
7) Monitoring network data management and analysis
8) Mobile monitoring program (tribal)
9) Tribal technical assistance (tribal)
10) CNEP professional training, capacity building, and staff development
11) Tribal air monitoring grant objectives and priorities

Site specific information is included in Table 1.

Task 1: Ambient Air Monitoring

The CNEP will conduct ambient air quality monitoring at its five current shelter locations in Oklahoma: Tahlequah, Newkirk, Stilwell, Pryor, & Roland.

All monitoring project deliverables will include daily operation, maintenance, QA functions and data management activities for all monitoring stations. All applicable requirements of Task 11 will be met.

Method:

The CNEP will adhere to the regulations and methods identified in the Clean Air Act, related federal registers and other relevant EPA guidance documents for its ambient monitoring program. The CNEP will also adhere to its approved Ambient Air Monitoring QAPPs for all monitoring and data reporting.

Where applicable the monitoring will measure ambient air for criteria pollutant emissions; O3, CO, NOx, NOy, SOx, PM2.5, PM10 and meteorological data. Table 1 details site specific information on each location.

Where applicable the CNEP will conduct biweekly level I audits. The EPA will conduct performance audits and verifications of the shelter instruments with through-the-probe (TTP) or mail audits when applicable. If funding is available, a contractor will perform independent semiannual audits of monitoring and sampling instruments per a pre-set schedule.

Planned Outputs:

1) Continuous ambient air monitoring for criteria pollutant emissions and meteorological data at five locations: Tahlequah, Newkirk, Stilwell, Pryor, & Roland. See grant application narrative section III (**Table 1**) for current site descriptions and monitored parameters at each specific site. Also see CNEP Criteria QAPP.

2) PMCoarse continuous based FRM measurements at the Stilwell NCORE site. Two MetOne PM10 and PM2.5 continuous analyzers will be utilized to collect PM2.5 and PM10 concentrations. See CNEP Criteria QAPP.

3) The development and submission of quarterly AQS data sets for each monitored parameter. Validated data along with corresponding Precision and Accuracy records will be entered directly into AQS.

4) Participate in passive sampling projects such as passive NO, NH3, mercury, and ozone as necessary.

Task 2: IMPROVE Monitoring

CNEP will conduct the operation of an IMPROVE PM speciation monitoring site at Stilwell. This activity will be collocated with the NCORE sampling operations. The IMPROVE speciation sampling compliments the NCORE program and fulfills the speciation requirement of the NCORE operation checklist. Funding will be provided by direct support from EPA Regional Stag to the contract vendor program.

Method:

The IMPROVE site consists of four modular instruments and a controller box mounted on the inside of the Stilwell NCORE sampling platform. The instruments will monitor for PM2.5 mass, sulfate/nitrate ions, organic elemental carbon, and PM10 mass. The IMPROVE sampling schedule follows the U.S. EPA 1-in-3 day schedule. CNEP will serve as the site operator and collect samples every Tuesday and ship them to U.C. Davis (or equivalent) laboratory for analysis. All IMPROVE data is posted to the VISTAS website. The NPS and U.C. Davis have developed standardized QAPP's and SOPs for IMPROVE site operation and laboratory analysis, and CNEP has adopted these QAPPs and SOPs. U.C. Davis also provides the necessary QA/QC, spare parts, data management, and training for the operation of the site.

Planned Outputs:

1) CNEP will collect IMPROVE samples every Tuesday.

2) CNEP will assist with site maintenance and accompany the NPS/U.C. Davis during QA/QC and maintenance operations.

3) CNEP will maintain the data results and/or reports once they are received from the laboratory. Copies will be sent to the EPA Region VI Office for review or use.

Task 3: CASTNET monitoring

CNEP will operate a CASTNET monitoring site south of Stilwell in eastern Oklahoma (Adair County) on Cherokee Nation tribal lands. The site was selected as part of the U.S. EPA, Office of Air Quality Planning & Standard's (OAQPS), Acid Rain Expansion Program and for tribal participation. The CASTNET station is collocated with CNEP's NCORE site.

Method:

The CASTNET site consists of several monitoring instruments that monitor (dry acid deposition method) for atmospheric concentrations of sulfate, nitrate, sulfur dioxide, ammonium, and nitric acid. In addition, continuous ambient ozone levels and meteorological measurements will be collected for calculating dry deposition rates. CNEP will serve as the site operator and collect samples every Tuesday and ship them to the EPA contract laboratory for analysis.

A continuous Nitrolux ammonia analyzer will be operated on site in conjunction with CASTNET and NCORE activities. The Nitrolux instrument data will be used in comparison with passive ammonia studies (when available).

OAQPS CAMD has developed a standardized QAPP for CASTNET site operation and laboratory analysis, and CNEP has adopted this QAPP. EPA contractors and/or subcontractors provide necessary QA/QC, maintenance, data management, and training for the operation of the site. CNEP will adhere to its QA/QC protocols and QAPP for the ozone monitoring. CNEP adheres to 40 CFR Part 58 QA for all CASTNET shelter activities, which includes ozone monitoring.

The station also has a collocated NOy instrument. The NOy inlet was installed at roof level. All additional monitoring activities are included in the CNEP Criteria QAPP.

Planned Outputs:

1) CNEP will collect dry deposition samples every Tuesday.

2) CNEP will assist with site maintenance and accompany the EPA during all of the QA/QC visits and operations. CNEP will conduct its own QA/QC for ozone monitoring every other week (level I audit) and have an independent audit at least once during the year. The CASTNET program contractor will also provide a second independent audit every two years.

3) CNEP will maintain its own ozone data and enter it into AQS each quarter. The ozone data is Part 58 compliant. Once the dry deposition data is received from the EPA OAQPS, copies will be sent to the EPA Region VI Office for review.

Task 4: NCORE Multi-pollutant Monitoring

Since 1998 Cherokee Nation has been involved with the National Air Monitoring Strategy and the development of a tribal National "CORE" air monitoring station to be collocated with the current Stilwell CASTNET site. The Cherokee CASTNET site has been selected as a rural NCORE site. Cherokee Nation has in place all the necessary monitoring instrumentation to participate in the National network of NCORE sites.

The objectives of trace gas measurements are a key component of the emerging National NCORE monitoring stations that are being deployed as part of ambient air monitoring strategy. The NCORE multiple pollutant stations are intended to support multiple objectives with a greater emphasis on assessment, research support, and accountability than the traditional NAMS/SLAMS networks.

Method:

Cherokee Nation will operate an NCORE site. Core monitored parameters will include trace CO, SO2, and NOy instruments. The NOy molycon has been mounted at 10 meters and will be compared to the current 3 meter (rooftop) NOy instrument within the CASTNET site. A non-trace NOx has also been installed for NOx analysis comparisons. Other installed parameters also include a zero air source, trace gas calibrator, and a digital datalogger.

Other equipment includes a continuous MetOne PM2.5 Federal Equivalent Method (FEM) Beta Attenuation Unit (BAM) and a similar MetOne PM10 unit for continuous PM coarse comparisons.

Other onsite equipment includes the AMNET Tekran speciated Mercury project funded through EPA Clean Air Markets Division.

Planned Outputs:

1) Operate the NCORE site

2) Routine QAPP updates relating to trace measurements in the CNEP criteria QAPP.

3) The development and submission of quarterly AQS data sets for each monitored parameter. Validated data along with corresponding Precision and Accuracy records will be entered directly into AQS. Invalidated data will be compiled into a quarterly missing data report that includes level I audits, independent audits, certifications and EPA performance audits (if provided). Copies of all site documentation are kept on file at the CNEP offices. An AQS AMP 240 & 450 data certification report will be generated each year for all sites. These reports along with a data certification letter will be sent to the EPA Region VI Office on May 1st to certify the previous year's data.

4) The CNEP will achieve 75% data completeness at the NCORE site and notify EPA of any situation where 120 hours of consecutive data are lost due to site or monitor malfunctions.

5) Data will be uploaded hourly and/or daily to EPA's AirNow Program.

Task 5: Mercury Deposition Network (MDN)

The objective of the MDN is to develop a national database of weekly concentrations of total mercury in precipitation and the seasonal and annual flux of total mercury in wet deposition. The MDN program operates under the National Atmospheric Deposition Program (NADP) at the University of Illinois.

NADP MDN analysis of precipitation samples for total Hg is performed by Frontier Geosciences, Inc., Seattle WA. The Mercury Deposition Network (MDN) sampler consists of a modified Aerochem Metrics collector that allows for weekly collection of precipitation samples. Samples are shipped to Frontier Geosciences laboratory for analysis of mercury. CNEP will adhere to the MDN program's approved QAPP for mercury monitoring.

Method:

The MDN network uses standardized methods for collection and analyses. CNEP will collect weekly precipitation samples which are collected in an NCON precipitation collector. The "wet-side" sampling glassware is removed from the collector every Tuesday and mailed to the Hg Analytical Laboratory (HAL) at Frontier Geosciences in Seattle, WA for analysis by cold vapor atomic fluorescence. The MDN sampling will provide CNEP data for total mercury. MDN data is available via download from the NADP website. The MDN sampling is anticipated to operate for a minimum of five years per established site and will be co-managed by the EPA, NADP Coordination Office, and the sponsoring agency (CNEP).

CNEP will operate an MDN sampler at the Stilwell CASTNET/NCORE site. CNEP will adhere to the NADP MDN program approved QAPP for mercury MDN sampling.

Planned Outputs:

1) CNEP will collect weekly mercury samples every Tuesday. (1 site X 52 weekly samples; 52 samples total)

2) CNEP will assist with site maintenance and accompany the MDN office during all QA/QC visits and operations.

3) An annual report will be provided to the EPA Region VI Office.

Task 6: Lead Sampling at CNEP's NCORE Site

The CNEP will sample for lead (Pb) at its NCORE site via EPA FEM Method ICP/MS EQL-0310-189.

Method:

The CNEP will begin sampling for lead at its Stilwell NCORE site in FY2011 using existing Tisch model 5000e samplers. A total of approximately 60 samples will be collected on a 1-in-6 day schedule for the 12-month fiscal year of 2011. Samples will be collected on 8x10 inch filters and will be analyzed by an independent laboratory via EPA FEM Method ICP/MS EQL-0310-189 . The lab will provide CNEP with sample filters and will analyze each sample for lead. Sample concentrations will be compared to the EPA NAAQS for lead. Sample data will be entered in AQS. All work for this task will be conducted in accordance with the CNEP's existing QAPP for Air Toxics Monitoring, which will be modified to include sampling for lead.

Planned Outputs:

1) Sample data will be entered in AQS on a quarterly basis. One or more reports (quarterly reports and/or final reports) summarizing the findings of this task will be sent to EPA Region 6.

2) Sample data will be compared to the lead NAAQS to determine the degree of risk posed by lead in ambient air to the health of tribal members living in the Cherry Tree tribal housing addition adjacent to the Stilwell NCORE site. Lead sampling and analysis is a required component for NCORE sampling operations.

3) The CNEP's existing criteria QAPP will be modified to include sampling for lead via ICP/MS (EQL-0310-189 Method). The suggested laboratory will be Inter-Mountain Labs in Sheridan Wyoming.

4) CNEP will participate in any required NPAP audits.

Task 7: Monitoring Network Data Management and Analysis

CNEP will conduct ongoing in-depth data analysis of all monitoring projects and data collection activities according to approved SOP's and QAPPs. Yearly, quarterly, or project specific data management and analysis activities are described under Methods below.

Methods:

-Submittal of all appropriate project data to AQS and/or EPA on a quarterly or annual basis (specific to each task priority and project requirements)
-Five year annual air monitoring network assessment (if required)
-Coordination with EPA-R6 for data analysis, modeling, and network support
-Data analysis techniques may include or involve:

- AQS data files
- MS Excel Charts & Graphs
- Air Modeling software
- ArcView GIS
- NOAA Back Trajectory Analysis
- other appropriate databases and applications.

Planned Outputs:

1) Coordination with EPA R6 air quality and analysis section for reporting and data needs.

2) Update and review of the CNEP network plan for monitoring changes, updates, and additions based on EPA and tribal input and assessment.

Task 8: Mobile Particulate and Ozone Monitoring

CNEP, acting through ITEC, utilizes a tribal mobile monitoring station capable of evaluating particulate and ozone pollution on tribal lands. This mobile station is fully equipped with continuous PM2.5 and PM10 instruments (TEOMS), a continuous O3 analyzer, and meteorological equipment. The station provides near-real-time hourly averages of particulate matter and ozone for tribal communities. In certain areas the unit is capable of wireless data transfers for data validation and posting of data to the U.S. EPA AQS database & AirNow websites. Hourly particulate and ozone measurement information will be available to the public in near-real-time. The mobile monitoring station is primarily available to tribes on a first come first served basis.

CNEP and the Osage Nation currently have an MOA to operate the unit on Osage tribal lands through FY11.

Planned Outputs:

1) This station monitors PM2.5, PM10, and O3 utilizing continuous monitoring equipment.

2) Staff will conduct QC equipment verifications at startup and shutdown at each location.

3) Staff will conduct monthly onsite flow checks of both PM2.5 and PM10 instruments. Daily flow verifications will be observed remotely via modem communications. Level I checks of O3 will be conducted monthly.

4) Yearly independent audits will be provided by the CNEP independent audit contractor or other technical support agency (TAMS Center, ODEQ, CNEP staff).

5) Near-real-time PM and ozone data will be uploaded to EPA's AirNow website for public viewing. (When applicable due to network and phone availability)

6) Validated AQS data will be uploaded each quarter for each site location. Excel data files will also be provided to EPA R-6.

7) A minimum of 2 calendar years of data will be collected for the Osage project.

8) CNEP and Osage Nation will review a mobile monitoring memorandum of agreement (MOA) yearly to continue monitoring activities on Osage Nation lands. EPA will be provided any updates of the MOA.

Task 9: Technical Assistance to Tribes

CNEP, acting through ITEC, will provide ambient air monitoring support and technical assistance to ITEC tribes. The assistance can include site instrument trouble-shooting, site maintenance, data analysis & management; AQS data input, and related air training. Air program staff will also provide tribal air quality programs with independent audit services if they desire or if requested by the EPA Region 6 technical staff.

Method:

Technical assistance, training, and independent audit services will be provided to the tribes by using the PM2.5 or criteria monitoring guidance and protocols developed by the EPA and CNEP. The air program technical staff will be on-call to provide advice, trouble-shooting, and repair services to ITEC tribes operating criteria pollutant monitoring and sampling equipment and meteorological instruments. CNEP will also provide training or support services for data management, data validation and AQS input. These services and training will be provided on-site as well as in-house for the tribal technicians and administrators overseeing their respective monitoring sites.

Independent quarterly audits will be conducted for all interested tribes in Region 6. CNEP staff will utilize certified audit instruments, and CNEP will provide audit reports to these tribes. CNEP will maintain copies of these audit reports and records at the CNEP office.

CNEP currently conducts independent quarterly audits for the following tribes: Sac & Fox Nation, Delaware Nation, Choctaw Nation, Quapaw Tribe, and the Jemez Pueblo.

Planned Outputs:

1) CNEP, acting through ITEC, will provide criteria pollutant and meteorological monitoring technical services and training to the tribes on an "as needed basis."

2) Quarterly Independent audits will be conducted for tribes in Region 6 such as the Jemez Pueblo, Quapaw Tribe, Delaware Nation, Choctaw Nation, and Sac & Fox Nation. Audits may include criteria pollutant and meteorological monitoring and sampling instruments.

3) Independent audit reports will be provided to each tribe within 30 days of audit completion. Tribes will be notified immediately of serious concerns such as failed audits and broken or malfunctioning equipment.

Task 10: CNEP Professional Training & Development

If funding is available, CNEP will identify and participate in relevant clean air training, meetings, or conferences that will increase CNEP technical staff capabilities and promote improved service to Cherokee Nation and ITEC tribes.

Method:

If funding is available, CNEP staff will attend various technical and administrative trainings and conferences related to Clean Air. The following agencies or manufacturers may sponsor the meetings, courses, and conferences:

-Air Pollution Training Institute (APTI)
-Institute of Tribal Environmental Professionals (ITEP)
-CENRAP/CENSARA
-Environmental Systems Corporation (ESC) Agilaire
-American Ecotech
-Monitor Labs Inc.. (ML)
-MetOne
Thermo
-Inter-Mountain Laboratories (IML)
-Air & Waste Management Association (AWMA)
-Alliance of Hazardous Materials Professionals (AHMP)
-National Atmospheric Deposition Program (NADP)
-Program specific events and training

Course selection will be based on previous courses attended, work experience, and project needs.

Planned Outputs:

1) If funding is available, one or more high priority courses and/or conferences will be attended by CNEP Clean Air staff during the fiscal year.
2) Training will be reported to the U.S. EPA Region VI Office through the quarterly reports.

Task 11: Tribal Air Monitoring Grant Objectives & Priorities

Where applicable the CNEP air program will ensure the following grant priorities are achieved:

PRIORITY 1: Produce quality data and submit updated Quality Management Plan and Quality Assurance Project Plan(s) to EPA Region 6 annually.
OUTPUT: *QMP and QAPPs*
TIMEFRAME: *Annual update one year after approval date.*

PRIORITY 2: Operate and report data from ambient air monitor networks into the EPA Air Quality System. Each site parameter should have 75% data return for each quarter.
OUTPUT: *AQS*
TIMEFRAME: *Quarterly, no later than 90 days after the end of the calendar quarter.*

PRIORITY 3: Notify EPA Region 6 of any situation (such as monitor malfunction or data validation issue) that results in the loss of more than two consecutive PM-2.5 or PM-10 FRM sampling days or the loss of 120 consecutive hours of any continuous analyzer data. Identify the corrective action taken to minimize the loss of data.
OUTPUT: *Letter and/or e-mail*
TIMEFRAME: *As soon as possible, but no more than 14 days after the event.*

PRIORITY 4: Notify EPA-R6 (6PD-Q) prior to establishing, modifying, relocating, or discontinuing any air monitor and/or site.
OUTPUT: *Letter to EPA-R6*
TIMEFRAME: *30 days prior to change*

PRIORITY 5: Conduct ambient air monitoring network reviews. Conduct analyses of data to aid in program development/assessment/evaluation.
OUTPUT: *Letter*
TIMEFRAME: *Annually*

PRIORITY 6: Certify all yearly data in the Air Quality System (AQS) to determine that it is complete and accurate.
OUTPUT: *Data certification letter with appropriate AQS AMP reports.*
TIMEFRAME: *By every May 1st.*

PRIORITY 7: Actively support and deliver PM-2.5 continuous data into AIRNow.
OUTPUT: *AIRNow*
TIMEFRAME: *Present target is 20 minutes; long-term goal is 5 minutes.*

PRIORITY 8: Actively support and deliver PM-10 continuous data into AIRNow.
OUTPUT: *AIRNow*
TIMEFRAME: *Present target is 20 minutes; long-term goal is 5 minutes.*

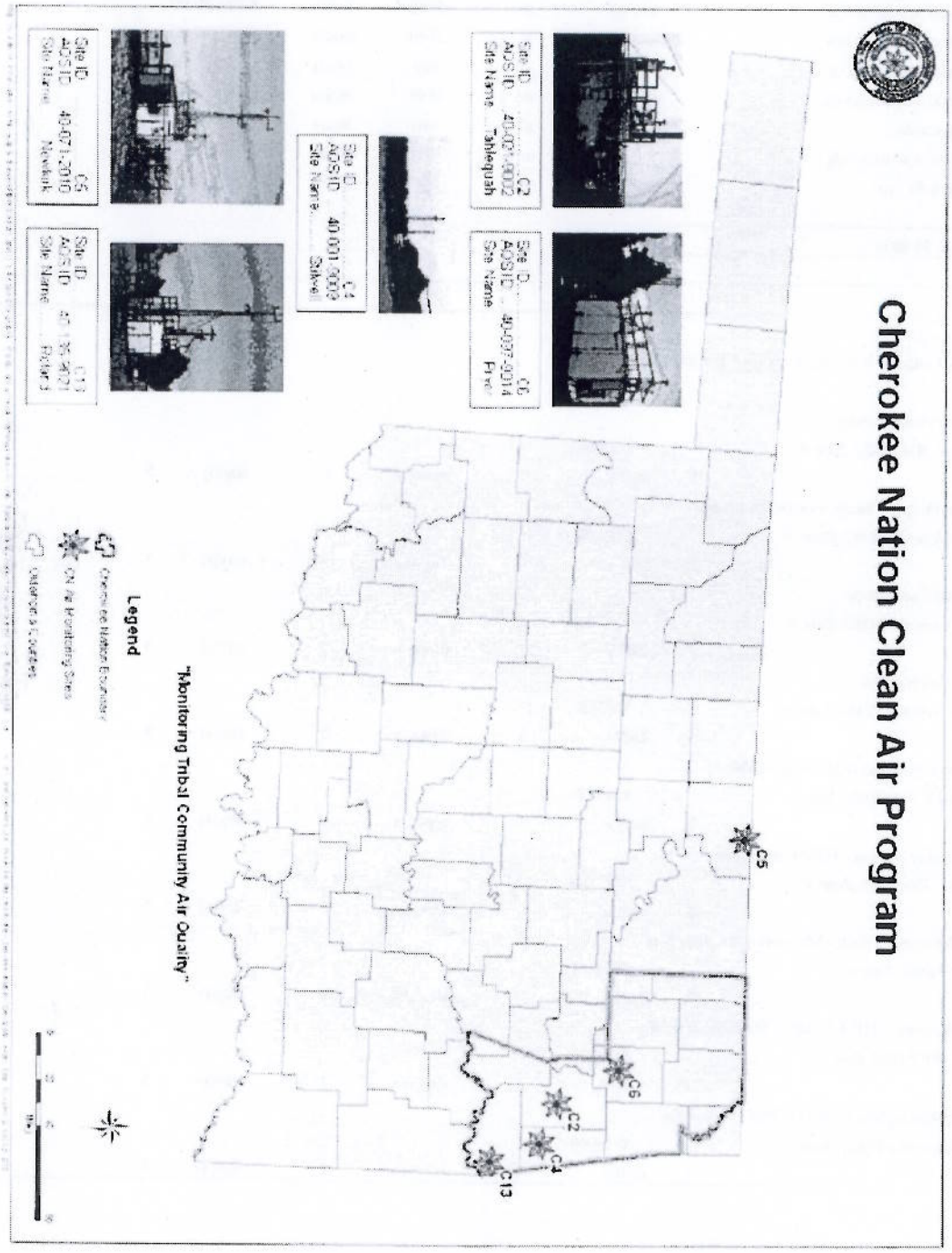
PRIORITY 9: Actively support and deliver ozone data into EPA's AIRNow.
OUTPUT: *AIRNow*
TIMEFRAME: *Daily*

III. CNEP Site Detail Description Table

TABLE 1
Environmental Parameters Monitored
At Each CNEP Air Quality Monitoring Station in FY2011

Site	Parameters
Tahlequah	Continuous monitoring of O_3
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity, precipitation)
Stilwell NCORE CASTNet IMPROVE MDN	NCORE (continuous monitoring of trace level SO_2, CO, and NOy; continuous monitoring of non-trace level NOx, NO, and NO_2; continuous monitoring of PM2.5 & PM10 via FEM BAM)
	CASTNet program (continuous monitoring of O_3; dry deposition sampling for aerosol sulfate, nitrate, and ammonium; dry deposition sampling for gaseous SO_2 and nitric acid)
	Continuous monitoring of NH_3, NOy, NO, and NOy-NO
	Mercury speciation via Tekran instrument (continuous monitoring) – EPA CAMD funding
	Depositional mercury via MDN sampling
	IMPROVE (speciated PM components affecting visibility, including PM2.5, PM10, Na, Mn, Fe, Pb, carbon, nitrate, nitrite, chloride, sulfate) *funding dependant*
	Passive sampling studies such as Hg and NH3
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity, precipitation, solar radiation) via CASTNet instruments
	Lead Sampling via EPA FEM Method (ICP/MS EQL-0310-189-high volume)
Newkirk	Continuous monitoring of O_3, NOy, NO, NOy-NO
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity, precipitation)
Pryor	Continuous monitoring of O_3, NOy, NO, NOy-NO
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity, precipitation)
Roland	Continuous monitoring of O_3, and NOx (proposed)
	PM2.5 FEM BAM
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity)
Mobile monitor	PM10 (via TEOM), PM2.5 (via TEOM), PMcoarse via difference method.
	Continuous monitoring of O_3
	Meteorological parameters (wind speed, wind direction, temperature, relative humidity)

FIGURE 1


Cherokee Nation Clean Air Program
"Monitoring Tribal Community Air Quality"
Legend
C5
C6
C2
C4
C13

IV. CNEP AMBIENT AIR MONITORING GRANT FISCAL YEAR 2011 BUDGET

CNEP PERSONNEL:						**$**	**209,080**
Environmental Program Administrator-te	$32.00	at	40	hours	$1,280.00		
Environmental Program Director-re	$28.00	at	1800	hours	$50,400.00		
Environmental Specialist II-ah	$19.00	at	2080	hours	$39,520.00		
Environmental Specialist I-ja	$19.00	at	2080	hours	$39,520.00		
Environmental Specialist I-dk	$16.00	at	2080	hours	$33,280.00		
Environmental Specialist I-ls	$16.00	at	500	hours	$8,000.00		
Environmental Technician-px	$13.00	at	1800	hours	$23,400.00		
Special Projects -la	$25.00	at	440	hours	$11,000.00		
Administrative Assistant - dg	$12.00	at	40	hours	$480.00		
Account Clerk III - sw	$11.00	at	200	hours	$2,200.00		
FRINGE: @ 39.00%						**$**	**81,541**
TRAVEL:						**$**	**23,277**

Per Diem & Lodging -base est. on location per day (gsa.gov)

Auditing site visits (Jemez)								
Albuquerque, NM PD&L Rate =	$129.00							
	1	staff x	4	trip(s) x	1	day(s)	$	516
ITEC Tribal Program Support or Development								
Oklahoma General PD&L Rate =	$132.00							
	1	staff x	5	trip(s) x	2	day(s)	$	1,320
ITEC Annual Conference								
Oklahoma General PD&L Rate =	$132.00							
	5	staff x	1	trip(s) x	2	day(s)	$	1,320
EPA R6 Tribal Summit								
Oklahoma General PD&L Rate =	$132.00							
	3	staff x	1	trip(s) x	2	day(s)	$	792
EPA National Air Quality Meeting (AirNow)								
San Francisco, CA PD&L Rate =	$249.00							
	2	staff x	1	trip(s) x	3	day(s)	$	1,494
EPA Air Quality System (AQS) Conference								
San Antonio, TX PD&L Rate =	$171.00							
	2	staff x	1	trip(s) x	5	day(s)	$	1,710
EPA R6 Meetings (Includes Monitoring Strategy Mtg)								
Dallas, TX PD&L Rate =	$168.00							
	3	staff x	3	trip(s) x	1	day(s)	$	1,512
Technical training (s) (ITEP, APTI, Manufacturer, etc)								
Las Vegas, NV PD&L Rate =	$157.00							
	3	staff x	2	trip(s) x	3	day(s)	$	2,826
Mobile Monitoring Site Visits/Audits/Coordination								
General Oklahoma PD&L Rate =	$109.00							
	1	staff x	4	trip(s) x	2	day(s)	$	872

Commercial Air Travel:	$355.00	avg. per flight			
ITEC Tribal Program Support or Development					
1	staff x	3	trip(s)	$	1,065
EPA National Air Quality Meeting (AirNow)					
2	staff x	1	trip(s)	$	710
EPA Rc Meetings (Includes Monitoring Strategy Mtg)					
3	staff x	3	trip(s)	$	3,195
EPA Air Quality System (AQS) Conference					
2	staff x	1	trip(s)	$	710
Technical training (s) or meetings(s) (ITEP, APTI, equipment vendors, etc)					
3	staff x	3	trip(s)	$	3,195
Mobile Monitoring Site Visits/Audits/Coordination (if needed)					
1	staff x	1	trip(s)	$	355
EPA Air Quality System (AQS) Conference					
1	staff x	1	trip(s)	$	355
Oklahoma Turnpike Pass fees (Toll Roads) (2010 estimates)				$	500
Misc. Taxi Cab Fares					
$20.00	cab fare x	10	trip(s)	$	200
Rental car flat rate (business trips, meetings, etc.)					
$63.00	rental fee x	10	trip(s)	$	630
EQUIPMENT:				**$**	**50,949**
(Equipment over >$5k not subject to IDC)					
Portable ozone transfer standard audit analyzer				$	14,000
Ecotech Digital Datalogger (Roland)				$	7,000
MetOne PM2.5 BAM (Roland)					$24,000
Portable Zero Air Generator (for ozone/gas audits)				$	5,949

CONTRACTUAL:						$	**46,732**
(Contractual not subject to IDC)							
Independant quarterly audits (gaseous analyzers, misc analyzers, & met equipment)						$	15,000
$5,000.00 per quarter X 3							
Network Shelters Tahlequah, Stilwell, Newkirk, Pryor, Marble City, Mobile							
Illinois State University - NADP's Mercury Deposition Network (*MDN*)						$	8,372
(Stilwell-OK99)							
Total Mercury Analysis.	1	sites x	52	samples x	$161		
Illinois State University *MDN* Network coordination, assessment, data mgmt							
	1	sites x	$2,700			$	2,700
Inter-Mountain Labs (Pb) Analysis (HBM) (Stilwell NCORE Pb)							
	140	samples x	$69			$	9,660
Fence Installation (Roland)						$	5,000
Ecotech Equipment Installation by Vendor (Roland)						$	6,000
SUPPLIES:						$	**24,000**
Instrument maintenance and supply parts for *repairs* (continuous criteria, continuous PM, Pb, and met)							
Thermo Environmental Instrument (R&P) Supplies						$	2,000
Teledyne API Instrument Supplies						$	1,000
Teledyne Monitor Labs Instrument Supplies						$	3,000
American Ecotech Instrument Supplies						$	5,000
Tisch Environmental (Pb) Supplies						$	1,000
MetOne Meteorological Instrument Supplies						$	3,000
OG&E Field Technical Supplies (EPA protocol gas cylinders; triblends, zero air, etc.)						$	5,000
Tulsa Valve and Fitting (Swagelock) Supplies						$	1,000
General office supplies, sampling platforms, hardware, PPE, Ogawa supplies, tools, printer cartridges, paper, copies, etc.						$	3,000

OTHER:							$	91,900
Pranalytica Nitrolux ammonia instrument-yearly evaluation and certification							$	5,000
Absolute Pressure Transducer Instrument							$	2,400
Audit instrument certifications Set includes thermometers, barometers, manometers, DeltaCals, BIOS devices, and FTS units								
	3	sets @	$300.00	each, annually			$	900
Shelter (site utilities) $200 per month/yr x 5 shelters								
	5	shelters @	$200.00	per month (12)			$	12,000
Shelter, instrument, GSA & operational insurance							$	5,000
Shelter heat & air maintenance & repair (Teague)							$	1,500
Office lease-space cost								
	5	offices @	500	square feet	$5.00	per square foot	$	12,500
Office utilities (12 months @ $200 per month)								
	12	months @	$300.00	per month			$	3,600
Office janitorial services; 12 months @ $100								
	12	months @	$100.00	per month			$	1,200
Communications (sites, office, cellular, & internet)							$	6,200
Office copy machine							$	1,000
Office shipping (instruments, passive samples, Pb, MDN, & NTN samples)							$	4,000
Professional dues, memberships, and educational reimbursement							$	2,000
EDAS Ambient Annual License Renewal							$	1,700
Teotech Wircollect DAS Annual License Renewal							$	1,100
2011 Technical training course registration fees							$	2,000
GSA Vehicle Usage (Based on 2010 site visit mileage totals)								
	2	vehicles x	$450.00	per month x	12	months	$	10,800
	2	vehicles x	15000	miles/year x	$0.58	mile	$	17,400
Yearly Office/Lab Security Alarm System							$	600
Community Outreach - Clean Air Promotional Materials							$	1,000

PERSONNEL:		$	289,080
FRINGE:		$	81,541
TRAVEL:		$	23,277
EQUIPMENT: (NO IDC)		$	50,949
CONTRACTUAL: (NO IDC)		$	46,732
SUPPLIES:		$	24,000
OTHER:		$	91,900
CATEGORY TOTALS SUBJECT TO IDC		$	429,798
DIRECT FEDERAL (NOT SUBJECT TO IDC ITEMS)		$	97,681
DIRECT FEDERAL		$	527,479
INDIRECT = DIRECT X IDC RATE IDC RATE =	15.71%	$	67,521
APPLICANT: NO MATCH		$	-
AWARD TOTAL:		$	595,000

OMB Number: 4040-0004
Expiration Date: 01/31/2012

Application for Federal Assistance SF-424

Version 02

*1. Type of Submission	*2. Type of Application	*If Revision, select appropriate letter(s):
☐ Preapplication	☑ New	
☑ Application	☐ Continuation	* Other (Specify)
☐ Changed/Corrected Application	☐ Revision	

*3. Date Received:	4. Application Identifier: Cherokee Nation
5a. Federal Entity Identifier:	*5b. Federal Award Identifier:
State Use Only:	
6. Date Received by State:	7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Cherokee Nation

* b. Employer/Taxpayer Identification Number (EIN/TIN):	*c. Organizational DUNS:
73-0757033	07-734-5494

d. Address:

*Street1: P.O. BOX 947
Street 2:
*City: Tahlequah
County: Cherokee
*State: Oklahoma
Province:
Country: USA
*Zip/ Postal Code: 74465

e. Organizational Unit:

Department Name:	Division Name:
Environmental Programs	Environmental Programs

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr
First Name: Ryan
Middle Name:
*Last Name: Callison
Suffix:

Title: Director

Organizational Affiliation:
Cherokee Nation

*Telephone Number: 918-453-5093	Fax Number: 918-456-5499

*Email: rcallison@cherokee.org

OMB Number: 4040-0004
Expiration Date: 01/31/2012

Application for Federal Assistance SF-424 Version 02

9. Type of Applicant 1: Select Applicant Type: K. Indian/Native American Tribally Designated Organization

Type of Applicant 2: Select Applicant Type: - Select One -

Type of Applicant 3: Select Applicant Type: - Select One -

*Other (specify):

*10. Name of Federal Agency:
U.S. EPA

11. Catalog of Federal Domestic Assistance Number:
66.034

CFDA Title:
Clean Air Act 103 Grants; Surveys, Studies, Investigation and Demonstrations

*12. Funding Opportunity Number:

*Title:

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):
Cherokee Nation 14 County Jurisdiction

*15. Descriptive Title of Applicant's Project:
Ambient Air Monitoring Program

Attach supporting documents as specified in agency instructions.

OMB Number: 4040-0004
Expiration Date: 01/31/2012

Application for Federal Assistance SF-424

Version 02

16. Congressional Districts Of: 2

*a. Applicant 2 *b. Program/Project: 2

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project: Ambient Air Monitoring

*a. Start Date: 10-1-10 *b. End Date: 9-30-11

18. Estimated Funding ($):

*a. Federal	$595,000.00
*b. Applicant	
*c. State	
*d. Local	
*e. Other	
*f. Program Income	
*g. TOTAL	$595,000.00

***19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on
☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.
☑ c. Program is not covered by E.O. 12372

*20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)
☐ Yes ☑ No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

☑ **I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Ms. *First Name: Melanie

Middle Name:

*Last Name: Knight

Suffix:

*Title: Secretary of State, Cherokee Nation

*Telephone Number: 918-453-5705 Fax Number: 918-458-5499

*Email: melanie-knight@cherokee.org

*Signature of Authorized Representative: [signature] Date Signed: 5/20/10

OMB Approval No. 0348-0044

BUDGET INFORMATION - Non-Construction Programs

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Clean Air	66.034	$	$	$	$	$
2.						
3.						
4.						
5. Totals		$	$	$	$	$

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
a. Personnel	209,080.00				
b. Fringe Benefits	81,541.00				
c. Travel	23,277.00				
d. Equipment	50,949.00				
e. Supplies	24,000.00				
f. Contractual	46,732.00				
g. Construction					
h. Other	91,900.00				
i. Total Direct Charges (sum of 6a-6h)	527,479.00				
j. Indirect Charges	67,521.00				
k. TOTALS (sum of 6i and 6j)	$ 595,000.00	$	$	$	$
7. Program Income	$	$	$	$	$